WHAT IS CLAIMED IS:

1. A reactor for growing a gallium containing single crystal, comprising:

a multi-zone heater;

a growth zone, wherein said multi-zone heater maintains at least one substrate within said growth zone at a growth temperature greater than 850° C;

an extended gallium source within a multi-zone gallium source zone, wherein said multi-zone heater maintains a first portion of said extended gallium source at a first temperature greater than 450° C while simultaneously maintaining a second portion of said extended gallium source at a second temperature in the range of 30° C to 100° C, wherein upon reaction initiation said second portion comprises at least 50 percent of said extended gallium source;

a halide reaction gas source coupled to said multi-zone gallium source zone;

an inert gas source coupled to said multi-zone gallium source zone to transport a first reaction product from said multi-zone gallium source zone to said growth zone; and

a reaction gas source coupled to said growth zone.

2. The reactor of claim 1, wherein upon reaction initiation said second portion comprises at least 90 percent of said extended gallium source.

3. The reactor of claim 1, wherein said second temperature is in the range of 30° C to 40° C.

4. The reactor of claim 1, further comprising a first aluminum source zone, wherein said halide reaction gas source and said inert gas source are coupled to said first aluminum source zone, and wherein said multi-zone heater maintains a first aluminum source within said first aluminum source zone to a third temperature greater than 700° C.

5. The reactor of claim 4, further comprising a second aluminum source zone, wherein said halide reaction gas source and said inert gas source are coupled

to said second aluminum source zone, and wherein said multi-zone heater maintains a second aluminum source within said second aluminum source zone to a fourth greater than 700° C.

6. The reactor of claim 1, wherein said multi-zone heater is a multi-zone resistive heater furnace.

7. The reactor of claim 1, further comprising an acceptor impurity source zone, wherein said inert gas source is coupled to said acceptor impurity source zone, and wherein said multi-zone heater maintains an acceptor impurity within said acceptor impurity source zone at a third temperature.

8. The reactor of claim 1, further comprising a donor impurity source zone, wherein said inert gas source is coupled to said donor impurity source zone, and wherein said multi-zone heater maintains a donor impurity within said donor impurity source zone at a third temperature.

9. The reactor of claim 1, further comprising means for transferring said at least one substrate within said growth zone to a second growth zone.

10. The reactor of claim 9, wherein said multi-zone heater maintains said at least one substrate within said second growth zone at a third temperature.

11. The reactor of claim 10, wherein said growth temperature is in the range of 1,000° C to 1,100° C and wherein said third temperature is in the range of 850° C to 1,000° C.

12. The reactor of claim 1, wherein said halide gas source supplies HCl gas.

13. The reactor of claim 1, wherein said reaction gas source supplies ammonia gas.